

**FORSPAN ASSESSMENT MODEL FOR CONTINUOUS
ACCUMULATIONS--BASIC INPUT DATA FORM (NOGA, Version 9, 2-10-03)**

IDENTIFICATION INFORMATION

Assessment Geologist:	R.C. Johnson	Date:	9/19/2005
Region:	North America	Number:	5
Province:	Wind River Basin	Number:	5035
Total Petroleum System:	Cretaceous-Lower Tertiary Composite	Number:	503502
Assessment Unit:	Mesaverde Coalbed Gas	Number:	50350281
Based on Data as of:	tested cells based on IHS Energy Data 2002, EUR based Wyoming Oil and Gas Conservation Commission data		
Notes from Assessor:	analogs: Powder River Basin and Piceance Basin (50200282) and Southwestern Wyoming (50370681)		

CHARACTERISTICS OF ASSESSMENT UNIT

Assessment-unit type: Oil (<20,000 cfg/bo) or Gas (≥20,000 cfg/bo), incl. disc. & pot. additions Gas

What is the minimum total recovery per cell? 0.02 (mmbo for oil A.U.; bcfg for gas A.U.)

Number of tested cells: 7

Number of tested cells with total recovery per cell ≥ minimum: 1

Established (discovered cells): X Hypothetical (no cells):

Median total recovery per cell (for cells ≥ min.): (mmbo for oil A.U.; bcfg for gas A.U.)

1st 3rd discovered 2nd 3rd 3rd 3rd

Assessment-Unit Probabilities:

<u>Attribute</u>	<u>Probability of occurrence (0-1.0)</u>
1. CHARGE: Adequate petroleum charge for an untested cell with total recovery ≥ minimum.	<u>1.0</u>
2. ROCKS: Adequate reservoirs, traps, seals for an untested cell with total recovery ≥ minimum.	<u>1.0</u>
3. TIMING: Favorable geologic timing for an untested cell with total recovery ≥ minimum.	<u>1.0</u>
Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):	<u>1.0</u>

NO. OF UNTESTED CELLS WITH POTENTIAL FOR ADDITIONS TO RESERVES

- Total assessment-unit area (acres): (uncertainty of a fixed value)
calculated mean 649,000 minimum 584,000 mode 649,000 maximum 713,000
- Area per cell of untested cells having potential for additions to reserves (acres): (values are inherently variable)
calculated mean 146.7 minimum 40 mode 120 maximum 280
uncertainty of mean: minimum 100 maximum 190
- Percentage of total assessment-unit area that is untested (%): (uncertainty of a fixed value)
calculated mean 99.9 minimum 99.7 mode 99.9 maximum 100

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NO. OF UNTESTED CELLS WITH POTENTIAL FOR ADDITIONS TO RESERVES
(Continued)

4. Percentage of untested assessment-unit area that has potential for additions to reserves (%):
(a necessary criterion is that total recovery per cell > minimum; uncertainty of a fixed value)

calculated mean	11.7	minimum	1	mode	7	maximum	27
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Geologic evidence for estimates: At minimum, minimal development areas around USGS pilot areas;
at mode, 10% of high potential area;
at maximum, about 40% of the high potential area plus a minor amount of the low potential area

TOTAL RECOVERY PER CELL

Total recovery per cell for untested cells having potential for additions to reserves:
(values are inherently variable; mmbo for oil A.U.; bcfg for gas A.U.)

calculated mean	0.22	minimum	0.02	median	0.1	maximum	5
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AVERAGE COPRODUCT RATIOS FOR UNTESTED CELLS, TO ASSESS COPRODUCTS
(uncertainty of fixed but unknown values)

<u>Oil assessment unit:</u>	minimum	mode	maximum
Gas/oil ratio (cfg/bo)	_____	_____	_____
NGL/gas ratio (bnlg/mmcfg)	_____	_____	_____
<u>Gas assessment unit:</u>			
Liquids/gas ratio (bliq/mmcfg)	0	2	5

SELECTED ANCILLARY DATA FOR UNTESTED CELLS

(values are inherently variable)

<u>Oil assessment unit:</u>	minimum	mode	maximum
API gravity of oil (degrees)	<u> </u>	<u> </u>	<u> </u>
Sulfur content of oil (%)	<u> </u>	<u> </u>	<u> </u>
Depth (m) of water (if applicable)	<u> </u>	<u> </u>	<u> </u>

Drilling depth (m)

minimum	F75	mode	F25	maximum
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

<u>Gas assessment unit:</u>	minimum	mode	maximum
Inert-gas content (%)	<u>0.10</u>	<u>0.30</u>	<u>1.00</u>
CO ₂ content (%)	<u>0.50</u>	<u>1.80</u>	<u>20.00</u>
Hydrogen sulfide content (%)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Heating value (BTU)	<u>850</u>	<u>950</u>	<u>1050</u>
Depth (m) of water (if applicable)	<u> </u>	<u> </u>	<u> </u>

Drilling depth (m)

minimum	F75	mode	F25	maximum
<u>90</u>	<u>779</u>	<u>1200</u>	<u>1294</u>	<u>1800</u>

<u>Success ratios:</u>	calculated mean	minimum	mode	maximum
Future success ratio (%)	<u>41.7</u>	<u>10</u>	<u>50</u>	<u>65</u>

Historic success ratio, tested cells (%) 14

Completion practices:

1. Typical well-completion practices (conventional, open hole, open cavity, other)	<u>conventional</u>
2. Fraction of wells drilled that are typically stimulated	<u>1</u>
3. Predominant type of stimulation (none, frac, acid, other)	<u>hydro</u>
4. Fraction of wells drilled that are horizontal	<u>0</u>

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO STATES

Surface Allocations (uncertainty of a fixed value)

1.	<u>Wyoming</u>	represents	<u>100</u>	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity	<u> </u>	<u>100</u>	<u> </u>
2.	<u> </u>	represents	<u> </u>	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
3.	<u> </u>	represents	<u> </u>	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
4.	<u> </u>	represents	<u> </u>	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
5.	<u> </u>	represents	<u> </u>	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
6.	<u> </u>	represents	<u> </u>	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity	<u> </u>	<u> </u>	<u> </u>

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7. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

8. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

9. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

10. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

11. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

12. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO GENERAL LAND OWNERSHIPS

Surface Allocations (uncertainty of a fixed value)

1. <u>Federal Lands</u>	represents	<u>41.08</u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u>29</u>	<u> </u>
2. <u>Private Lands</u>	represents	<u>22.69</u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u>22.5</u>	<u> </u>
3. <u>Tribal Lands</u>	represents	<u>31.39</u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u>45</u>	<u> </u>
4. <u>Other Lands</u>	represents	<u>0.24</u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u>0.5</u>	<u> </u>
5. <u>State 1 Lands</u>	represents	<u>4.61</u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u>3</u>	<u> </u>
6. <u> </u>	represents	<u> </u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u> </u>	<u> </u>

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7. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

8. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

9. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

10. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

11. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

12. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO FEDERAL LAND SUBDIVISIONS

Surface Allocations (uncertainty of a fixed value)

1. <u>Bureau of Land Management (BLM)</u>	represents	<u>40.85</u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u>29</u>	<u> </u>
2. <u>BLM Wilderness Areas (BLMW)</u>	represents	<u> </u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
3. <u>BLM Roadless Areas (BLMR)</u>	represents	<u> </u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
4. <u>National Park Service (NPS)</u>	represents	<u> </u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
5. <u>NPS Wilderness Areas (NPSW)</u>	represents	<u> </u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
6. <u>NPS Protected Withdrawals (NPSP)</u>	represents	<u> </u>	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	<u> </u>	<u> </u>	<u> </u>
<u>Gas in gas assessment unit:</u>			
Volume % in entity	<u> </u>	<u> </u>	<u> </u>

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7. <u>US Forest Service (FS)</u>	_____	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum		mode	maximum
Volume % in entity	_____		_____	_____
<u>Gas in gas assessment unit:</u>				
Volume % in entity	_____		_____	_____
8. <u>USFS Wilderness Areas (FSW)</u>	_____	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum		mode	maximum
Volume % in entity	_____		_____	_____
<u>Gas in gas assessment unit:</u>				
Volume % in entity	_____		_____	_____
9. <u>USFS Roadless Areas (FSR)</u>	_____	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum		mode	maximum
Volume % in entity	_____		_____	_____
<u>Gas in gas assessment unit:</u>				
Volume % in entity	_____		_____	_____
10. <u>USFS Protected Withdrawals (FSP)</u>	_____	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum		mode	maximum
Volume % in entity	_____		_____	_____
<u>Gas in gas assessment unit:</u>				
Volume % in entity	_____		_____	_____
11. <u>US Fish and Wildlife Service (FWS)</u>	_____	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum		mode	maximum
Volume % in entity	_____		_____	_____
<u>Gas in gas assessment unit:</u>				
Volume % in entity	_____		_____	_____
12. <u>USFWS Wilderness Areas (FWSW)</u>	_____	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum		mode	maximum
Volume % in entity	_____		_____	_____
<u>Gas in gas assessment unit:</u>				
Volume % in entity	_____		_____	_____

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13. <u>USFWS Protected Withdrawals (FWSP)</u>	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____
14. <u>Wilderness Study Areas (WS)</u>	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____
15. <u>Department of Energy (DOE)</u>	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____
16. <u>Department of Defense (DOD)</u>	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____
17. <u>Bureau of Reclamation (BOR)</u>	represents	0.23	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	0	_____
18. <u>Tennessee Valley Authority (TVA)</u>	represents	_____	area % of the AU
<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

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19. Other Federal represents area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity			

Gas in gas assessment unit:
Volume % in entity

20. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity			

Gas in gas assessment unit:
Volume % in entity

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO ECOSYSTEMS

Surface Allocations (uncertainty of a fixed value)

1.	Central Basin and Hills (CNBH)	represents	94.5	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity			
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity		94.5	
2.		represents	5.5	area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity			
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity		5.5	
3.		represents		area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity			
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity			
4.		represents		area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity			
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity			
5.		represents		area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity			
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity			
6.		represents		area % of the AU
	<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
	Volume % in entity			
	<u>Gas in gas assessment unit:</u>			
	Volume % in entity			

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7. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

8. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

9. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

10. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

11. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____

12. _____ represents _____ area % of the AU

<u>Oil in oil assessment unit:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity	_____	_____	_____
